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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/324,149	06/02/1999	SHIMON WEISS	IB-1402	1126
20350	7590	08/23/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			QUARTERMAN, KEVIN J	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 08/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/324,149

Applicant(s)

WEISS ET AL.

Examiner

Kevin Quarterman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24-28 is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date, <u>0704</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 21 June 2004 has been entered.

Claim Rejections - 35 USC § 102

2. Claims 1-6, 12-15, and 17-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Jaskie (US 5442254).
3. Regarding independent claim 1, Figures 1-5 of Jaskie show a display apparatus comprising an array of semiconductor nanocrystals forming a pixel array of different colors, wherein the sizes of the nanocrystals determine the colors (col. 6, ln. 41-46), and a pixel addressing system (Fig. 3-5) operatively associated with the nanocrystal array for selectively optically exciting the nanocrystals to produce a luminescent color pattern of pixels.
4. Regarding claim 2, Figures 3-5 of Jaskie show the pixel addressing system including a backlight source.
5. Regarding claim 3, Jaskie discloses that the backlight source is a source of ultraviolet light or blue light (col. 7, ln. 48).

6. Regarding claim 4, Figures 4-5 of Jaskie show a pixel addressing system comprising a multi-element backlight source, wherein each source is independently operable.
7. Regarding claim 5, Jaskie discloses that the source elements may include lasers (col. 3, ln. 62).
8. Regarding claim 6, Jaskie discloses that the backlight source is a source of ultraviolet light or blue light (col. 7, ln. 48).
9. Regarding claim 12, Jaskie discloses that the source elements may include lasers (col. 3, ln. 62).
10. Regarding claim 13, Jaskie discloses that the backlight source is a source of ultraviolet light or blue light (col. 7, ln. 48).
11. Regarding claim 14, Jaskie discloses that the nanocrystal array is formed of nanocrystals which each emit light of one of the three primary colors red, green, and blue, arranged to form red, green, or pixels respectively (Abstract).
12. Regarding claim 15, Jaskie discloses nanocrystals which emit light at other than the primary colors red, green, and blue (Abstract).
13. Regarding claim 17, Figure 2 of Jaskie shows nanocrystals on a transparent plate (22).
14. Regarding claim 18, Figure 4 of Jaskie shows the nanocrystal array positioned between the transparent plate and the backlight source.
15. Regarding claim 19, Figure 5 of Jaskie shows the nanocrystal array formed on the backlight source.

16. Regarding claim 20, Jaskie discloses that the backlight source is a source of ultraviolet light or blue light (col. 7, ln. 48).

17. Regarding claims 21-22, the Examiner notes the functional recitation that the pixel addressing system produces light of substantially a single wavelength has not been given patentable weight because it is narrative in form. Since there are no structural differences from the prior art, the light source of Jaskie meets the claim because it is capable of producing light of a single wavelength.

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 7-11 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jaskie (US 5442254) in view Yagyu (US 5856814).

20. Regarding claims 7-11, Jaskie discloses the limitations of claims 1-6, as discussed earlier. Figure 3 of Jaskie also shows an analyzer and a polarizer (61, 63) in the device. Jaskie fails to exemplify a liquid crystal modulator positioned between the backlight source and the nanocrystal array; an analyzer positioned between the backlight source and the liquid crystal modulator; and a polarizer positioned between the backlight source and the liquid crystal modulator.

21. Yagyu teaches that it is known in the art to provide a liquid crystal modulator in display devices (col. 7, ln. 7-15). Yagyu also teaches that it is known in the art to

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provide an analyzer in display devices (col. 13, ln. 44-45). Yagyu also teaches that it is known in the art to provide a polarizer in display devices (col. 13, ln. 44-45). Figure 18 of Yagyu shows the analyzer (522) and the polarizer (522) positioned between the liquid crystal modulator (517) and the backlight source (519).

22. Therefore, it would have been obvious to a person having ordinary skill in the art to provide device of Jaskie with the structure having a modulator, an analyzer, and a polarizer, as taught by Yagyu, for modulating, analyzing, and polarizing the light signals of the light source.

23. Regarding claim 23, the Examiner notes the functional recitation that the pixel addressing system produces light of substantially a single wavelength has not been given patentable weight because it is narrative in form. Since there are no structural differences from the prior art, the light source of Jaskie meets the claim because it is capable of producing light of a single wavelength.

24. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jaskie (US 5442254) in view of Bhargava (US 5422489).

25. Jaskie discloses all of the limitations of claim 1 as stated above but fails to exemplify a filter placed over the nanocrystal array.

26. Bhargava, in the analogous art of light emitting devices, discloses a glowing device having a nanocrystal layer with a filter for transforming radiation into the desired spectrum region (Column 1, Last Paragraph).

27. Therefore, it would have been obvious to a person having ordinary skill in the art to place a filter over the nanocrystal array, as taught by Bhargava, in the device of Jaskie for filtering light to thereby produce a desired display.

Allowable Subject Matter

28. Claims 24-28 are allowed.

29. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record neither shows or suggests a multicolor display apparatus comprising, in addition to other limitations of the claim, a nanocrystal array forming an array of pixels, wherein the array of pixels comprise a first discrete pixel comprising first nanocrystal particles of a first size and a second discrete pixel comprising second nanocrystal particles of a second size. Due to their dependency upon independent claim 24, claims 25-28 are also allowable.

Response to Arguments

30. Applicant's arguments with respect to claims 1-23 have been considered but they are not persuasive.

31. In response to applicant's argument that Jaskie fails to teach an array of semiconductor nanocrystals forming a pixel array of different colors, the Examiner notes that Jaskie discloses "tuning" the nanocrystals so that they are either the same size or separating the particles into different sizes (col. 7, ln. 28-40), which would produce different colors. Thus, the Examiner holds that Jaskie teaches the array of semiconductor nanocrystals, as discussed earlier.

32. In response to applicant's argument that Jaskie fails to mention the word "pixel" in the disclosure, the Examiner notes that a pixel is defined as any of the small discrete elements that together constitute an image, as on a television screen (Merriam-Webster's Collegiate Dictionary, 10th Edition). Figure 4 of Jaskie, also acknowledged by applicant, is a CRT utilizing the teachings of Jaskie's invention. The Examiner also notes that at lines 19-28 of column 8, Jaskie discloses that Figure 4 is a standard array of FEDs, as disclosed in US Patent 5,212,426. Thus, the Examiner holds that even though Jaskie doesn't explicitly mention the word "pixel" in the disclosure, Jaskie clearly refers to pixels in the discussion of producing images during the operation of the cathode ray tube.

33. In response to applicant's argument that the particles of Jaskie are not arranged in a pixel array, since the particles appear to be "somewhat randomly oriented", the Examiner notes that an array is defined as a large number, as in persons or objects. The particles of Jaskie appear to also have a regular arrangement. Thus, the Examiner holds that the particles of Jaskie are arranged in an array.

Conclusion

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kane (US 5212426) discloses an integrally controlled field emission display device. Fujita (US 6157047) discloses a light-emitting semiconductor device using nanocrystals. Bhargava (US 5952665) discloses a composite nanophosphor screen for detecting radiation.

35. All claims are drawn to the same invention claimed in the application prior to the entry of the submission under 37 CFR 1.114 and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the application prior to entry under 37 CFR 1.114. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action after the filing of a request for continued examination and the submission under 37 CFR 1.114. See MPEP § 706.07(b).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

36. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Contact Information


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Quarterman whose telephone number is (571) 272-2461. The examiner can normally be reached on M-TH (7-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (571) 272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin Quarterman
Examiner
Art Unit 2879

kq 
21 August 2004


Joseph Williams
Primary Examiner
Art Unit 2879